

DIESEL EMISSIONS QUANTIFIER

12/4/2008

<http://cfpub.epa.gov/quantifier/view/welcome.cfm>

	Annual	NOx (tons/year)	PM (tons/year)	HC (tons/year)	CO (tons/year)	CO2 (tons/year)	Diesel- Equivalent (gallons/year)	Inputs	Quantity
Baseline of Entire Fleet		75.04	0.73	3.94	16.53	5,825	524,811	Number of Diesel School Buses	258
Baseline of Vehicles		75.04	0.73	3.94	16.53	5,825	524,811	Average Model Year	2001
Retrofitted Percent Reduced (%)		0.0%	25.0%	40.0%	30.0%	0.0%	0.0%	Retrofit Year	2009
Amount Reduced Per Year		0.00	0.18	1.57	4.96	0.00	0.00	Fuel Consumption (gal/yr for fleet)	524,811
Daily		NOx (kg/day)	PM (kg/day)	HC (kg/day)	CO (kg/day)	CO2 (kg/day)	Fuel (g/day)	VMT (per bus per year)	14,627
Kilograms Reduced Per Day (kg/day)		0.00	0.45	3.91	12.33	0.00	0.00	Idle Hours per bus per year	120
Lifetime		NOx (tons)	PM (tons)	HC (tons)	CO (tons)	CO2 (tons)	Diesel- Equivalent (gallons)		
Baseline of Entire Fleet		1,022.73	9.97	53.7	225.3	79,400	7,153,174	Emission control device = DOC + CCV	
Baseline of Vehicles		1,022.73	9.97	53.7	225.3	79,400	7,153,174	Unit cost = \$1,700 per bus for DOC + CCV	
Retrofitted Percent Reduced (%)		0.00	25.0%	40.0%	30.0%	0.0%	0.0%	Inst cost = \$0.00 per bus	
Amount Reduced		0.00	2.49	21.5	67.6	0.00	0.00		
Amount									
Emitted After Retrofit, Entire Fleet Amount		1,022.73	7.48	32.2	157.7	79,400	7,153,174		
Emitted After Retrofit, Retrofitted Vehicles		1,022.73	7.48	32.2	157.7	79,400	7,153,174		
Capital Cost Effectiveness (\$/ton), Retrofitted Vehicles		0.00	\$175,963	\$20,435	\$6,488	\$0	\$0		
Total Cost Effectiveness (\$/ton), Retrofitted Vehicles		n/a	n/a	n/a	n/a	n/a	n/a		

*where 1 year = 365 days, as evidenced by CO reduced = 4.96 tons per year x 2000 lb/ton = 9920 lb/yr and lb reduced/day = 27.18;
therefore 9920/27.18 = 364.97.

*where 1lb = 453.59 gm = 0.45359 kg

Note: The lifetime results are dependent on each vehicle group's remaining life. To determine the remaining life for each vehicle group, divide the lifetime results by the annual results using the Detailed Results tables below.

BEFORE RETROFIT

Per Bus

Vehicle Miles Traveled per Bus per Year	Emissions BEFORE Retrofit (Tons per bus per year)					Diesel Fuel Consumption (Gal per bus per year)	Emission Factors BEFORE Retrofit (Tons per Mile)				
	NOx	PM	HC	CO	CO2		NOx	PM	HC	CO	CO2
14,627	0.2909	0.0028	0.0153	0.0641	22.5791	2,034.2	1.988E-05	1.934E-07	1.044E-06	4.380E-06	1.544E-03
Emission Factors BEFORE Retrofit (Grams per Mile)											
	NOx	PM	HC	CO	CO2		18.04	0.18	0.95	3.97	1,400

AFTER RETROFIT

Per Bus

Vehicle Miles Traveled per Bus per Year	Emissions--AMOUNT REDUCED AFTER Retrofit (Tons per bus per year)					Diesel Fuel Consumption (Gal per bus per year)	Emission Factors--AMOUNT REDUCED AFTER Retrofit (Tons per Mile)				
	NOx	PM	HC	CO	CO2		NOx	PM	HC	CO	CO2
14,627	0.00000	0.00070	0.00609	0.01922	0.00000	2,034.2	0.0000E+00	4.7698E-08	4.1603E-07	#####	0.0000E+00
Emission Factors--AMOUNT REDUCED AFTER Retrofit (Grams per Mile)											
	NOx	PM	HC	CO	CO2		0.00	0.04	0.38	1.19	0.00

AFTER RETROFIT

Per Bus

Vehicle Miles	Emissions--EMISSIONS REMAINING AFTER Retrofit (Tons per bus per year)					Diesel Fuel Consumption (Gal per bus per year)	Emission Factors--AMOUNT REMAINING AFTER Retrofit (Tons per Mile)				
	NOx	PM	HC	CO	CO2		NOx	PM	HC	CO	CO2
14,627	0.29085	0.00213	0.00919	0.04484	22.57907	2,034.2	1.988E-05	1.457E-07	6.280E-07	3.066E-06	1.544E-03
Emission Factors--AMOUNT REMAINING AFTER Retrofit (Grams per Mile)											
	NOx	PM	HC	CO	CO2		18.04	0.13	0.57	2.78	1400.37

EPA Diesel Emissions Quantifier Inputs

12/4/2008

for 258 buses

Vehicle Class Number	1
Sector	School Bus
Vehicle/Equipment Type	School Bus
Model Year	2001
Retrofit Year	2009
Number of Vehicles	258
Usage Rate/Year Horsepower	
Fuel Type	Regular Diesel (ULSD), 15 ppm
Fuel Usage (gal)	524,811
Vehicle Miles Traveled/Year (VMT)	14,627
Technology	Diesel Oxidation Catalyst + Closed Crankcase Ventilation
Number of Vehicles Retrofitted	258
Unit Cost	\$0
Installation Cost	\$1,700
Total Project Cost	\$438,600